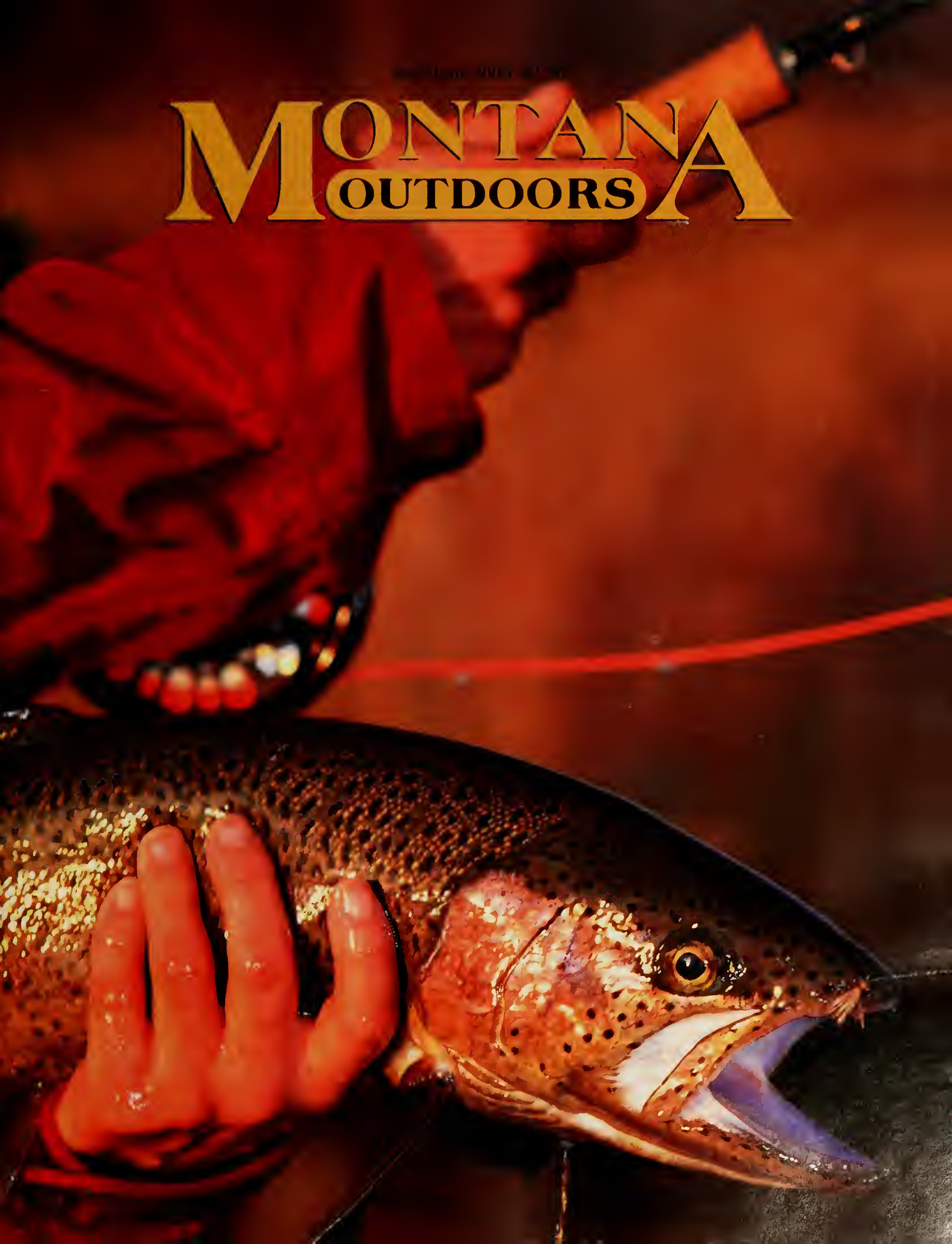
MONTANA OUTDOORS



Our Point of View

DONALD M. JONES

There are those who do not believe prairie dogs are threatened with extinction across the Great Plains. Others have pressed for reintroducing wolves to their former range in the northern Rockies. Some folks are concerned that once-common species of migratory songbirds are declining, while others battle over the recovery and reintroduction of grizzly bears.

You probably have your own views about the importance and status of these species. You may not be aware that the decisions that accompany these initiatives are creating a huge burden on state fish and wildlife agencies in the West. While our federal government is required to take action on behalf of imperiled fish and wildlife, it seldom can provide any financial support we states need to conserve or recover these species.

It strikes me that while anglers and hunters do not pursue many of these species—and others in the threatened species pipeline—they are paying much of the management cost. The burden on this faithful yet finite source of conservation funding will surely grow if species like the wolf and grizzly bear make it through the legal tangle to become delisted. Farmers and ranchers, too, are often affected, since the lives of many imperiled species depend on the landowners who work on the land these species call home.

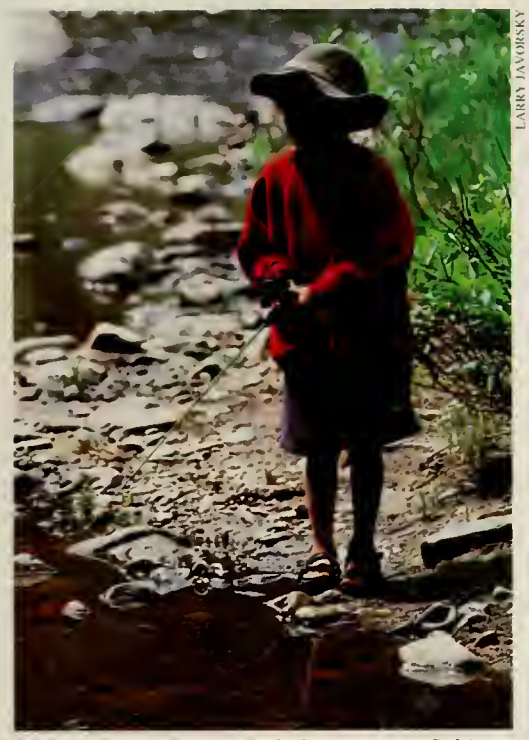
I believe landowners, hunters, anglers, and all other citizens can benefit from working together to ensure that these species do not experience further declines. Who will provide the information and management necessary to make that work? Who will provide the incentives for landowners to participate willingly?

The answer is contained in a collection of legislation before Congress (H.R. 701, S. 2123) referred to as the Conservation and Reinvestment Act. This legislation—and a similar proposal in the form of S. 2181—would provide money to state fish and wildlife agencies to conserve and manage species like wolves. They would provide funds for incentives to landowners who conserve species like prairie dogs and to conserve working forest and farm lands. They would increase the payments-in-lieu-of-taxes on federal lands so vital for county governments and would provide millions of dollars annually to improve recreational facilities ranging from national parks to local soccer fields. The money would come from taxes already collected from offshore oil and gas developments.

Hunters and anglers have created an unparalleled legacy over the past century for species like white-tailed deer, turkey, trout, elk, bass, and many more. For most of us there are few opportunities in a lifetime to take part in creating a legacy. The time is at hand. By creating a more locally driven, incentive-based approach to conservation, we can make a difference.

These bills demonstrate that many in Congress also understand that it is now time for the rest of the nation to step up to support fish, wildlife, and parks conservation. For more information on H.R. 701, S. 2123, or S. 2181, contact your U.S. representatives and senators. Now, more than ever, the future of fish and wildlife conservation may depend less on what we believe and far more upon how we act on those beliefs. Ask yourself, when wildlife calls, who will answer?

Patrick J. Graham, Director
Montana Fish, Wildlife & Parks



LARRY JAVORSKY

To get away from crowded rivers, try fishing a small stream (page 20).

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GRABBING A

by SAM CURTIS

Summer evenings in Montana seem serene when the daytime heat starts to dissipate and the sinking sun paints the sky with streaks of red and orange. Fat robins bounce across the thick grass of your lawn, and the first bats flit through the air. Along the creek, trout pimple the surface and waterboatmen twirl among the reeds. The night is tranquil, broken only by the melodic notes of an owl or the wail of a coyote back in the hills.

Those evenings are pretty peaceful, aren't they?

Bite to Eat

Well, not really. They're filled with predators killing for a bite to eat. The robins stab worms with their beaks, and bats gorge on moths in mid-air. Trout chomp down caddisflies and mayflies. Boatmen suck the innards from beetles. The owl is eyeing a rabbit, and the coyote pounces to pop a mouse in its mouth.

So, it's murder and mayhem then?

Well, not really that either.

Predation is an amoral presence in the natural world, fairly ugly for the individuals

that get eaten, and for us as the occasional onlooker, but generally beneficial for the species to which the prey belongs. Predators tend to keep prey populations from overcrowding their range, overrunning their food supply, and spreading epidemic diseases. And, as I tell my kids, predation allows predators to make a living.

Of course, killing as a profession is frowned upon in our society, but a surprising number of animals depend upon it for their survival. They use an amazing variety of strategies, and have evolved an intriguing number of physical accoutrements, to help put food in their mouths.

Some predators work alone, like the spider with its web, the robin hunting worms, the fox stalking field mice, and the heron dropping bugs on the water to lure fish into striking distance of its beak. Other predators employ team tactics. The wolf pack is a classic example of cooperative hunting. But even flocks of pelicans in Montana have been observed surrounding schools of fish and tightening their circle until they can easily scoop the concentrated fish into their pouched beaks. And Harris' hawks often hunt in twos and threes to pester a rabbit until it is exhausted, confused, and "easy prey."

Occasionally, even different species help one another grab a bite to eat. A coyote will sometimes wait patiently while a badger digs into a rodent burrow, not bothering the badger but waiting for any rodents that might escape, while keeping at bay any other predator interested in badger stew.

When it comes to specialized equipment for the predator's line of work, the bat's intricate system of echolocation for catching insects on the wing is nothing short of phenomenal. But even the simple-brained frog is very accurate at flicking bugs from the air because of an information processing system located behind the retina of its eye.

We tend to think of big, furry animals like wolves, mountain lions, and bears when picturing predators. And it certainly can be intriguing to examine the social interplay in a pack of hunting wolves to see how each member is depended upon by the others to do what he or she does best.

"Some wolves are good at finding prey, some at reading the strengths and weaknesses of prey, some at chasing prey, some at killing prey," writes Peter Steinhart in *The Company of Wolves*. When closing in on a moose, one wolf, who's adept at the job, may chomp its jaws with a suffocating grip over the moose's nose while others take turns nipping in to rip and tear its flanks, hamstrings, and throat. Hours may pass before the moose collapses from exhaustion or lack of blood. But, despite all the drama and bravado, these large predators use rather crude tactics and equipment when compared with smaller, more refined hunters.

Owls, for example (and Montana has many species), have some unique features that help them zero in on the mice, voles, and shrews that scurry about after dark.

Most owls have distinctive facial discs that function as much more than mere decoration. The disc, formed of stiff feathers, is actually shaped much like a satellite dish. So, it effectively gathers high-frequency sounds made by rodents, and it helps reflect these sounds to the owl's indented ear openings located within the outer edge of the disc.

This ingenious sound catcher is further refined by a pair of feathered creases running across the owl's facial disc and connecting with its ear openings. The creases help funnel sounds more effectively directly to the owl's ears. Despite the

RICHARD MOLNAR

A worm-seeking robin may not commonly be thought of as a predator, but like most creatures it must kill to survive.

owl's excellent nighttime eyesight and binocular vision, its superb hearing is the key to its nocturnal dining success. While perched on a snag swiveling its head more than 180 degrees in each direction, an owl is undoubtedly scanning the immediate countryside with its ears as well as it eyes, listening and looking for something to eat.

The effective range of an owl is probably not much more than 10 feet from its target because sounds are absorbed and mingled quickly by the surroundings. But once the owl makes auditory contact with a mouse, it swoops down on its prey with the sounds of its own wings quieted by down-covered feathers that skip past one another silently. Down borders along the leading and trailing edges of the wing feathers also make for smoother air flow over the wings. That means less air noise and a stealthier approach to the unsuspecting prey.

The owl's strike is swift. Its talons grip and pierce the mouse's body as it flies to a perch where it swallows the victim whole or picks it apart with a hooked beak designed for chopping and ripping.

Since the acidity of the owl's stomach is not potent enough to dissolve bones, teeth, feathers, and fur, these undigested body parts are coughed up in little bundles after its meal. You can find these strange pellets littering the ground beneath the owl's favorite perches.

Rattlesnakes have solved the difficult problem of digestion in a different way. Their venom is a lethal blend of toxic agents that, when injected through the fangs into a squirrel, let's say, not only immobilizes the squirrel so the rattler can consume it leisurely but also begins to digest the squirrel's insides before it is even swallowed.

Christopher McGowan, in his fascinating book *The Raptor and the Lamb*, from which I have culled considerable information for this article, writes: "The rattler's venom may contain hemolytic agents, which begin breaking down the blood and blood vessels, causing internal bleeding. There are also neurotoxins, which will inhibit the squirrel's movements, eventually leading to paralysis. The venom also contains enzymes for breaking down protein, and these enzymes begin digesting the squirrel's body from the inside. Its own heart assists the process by distributing the corrosive mixture to every part of its body."

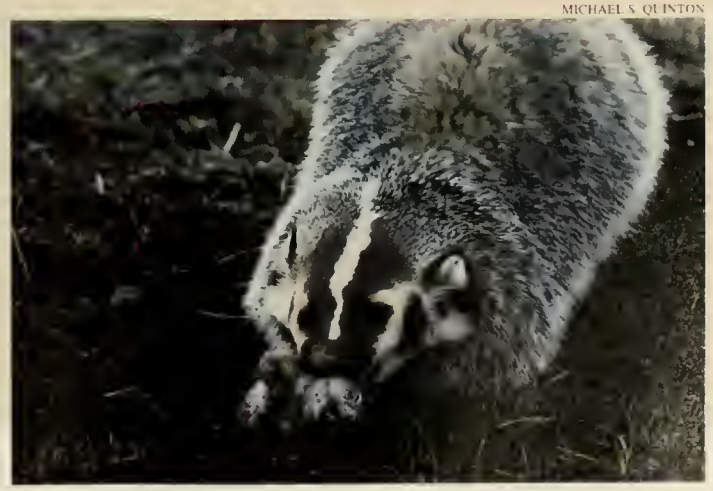
The morbid efficiency of the rattler's predatory design is evident even before the snake injects its venomous juices into the body of its prey. Although rattlesnakes have binocular vision and decent depth perception for launching an accurately placed strike, they often hunt in prairie dog burrows where darkness envelopes both them and their prey. Here,

DONALD M. JONES

DONALD M. JONES

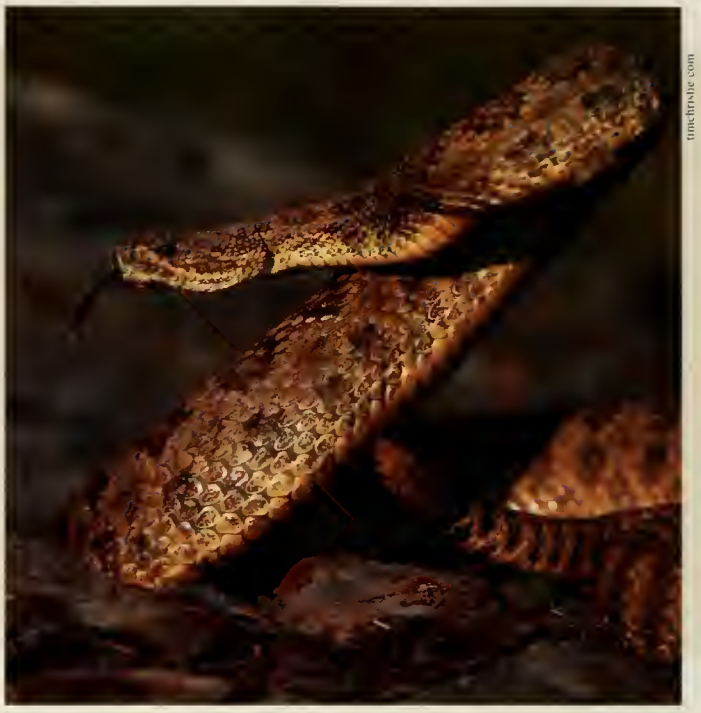
RICHARD MOUSEL

MICHAEL S. QUINTON



Top photo: *Although most owls are nocturnal, the burrowing owl is active day and night. Its diet includes small mammals, other birds, insects, and frogs.* **Second photo:** *The owl's facial disc helps funnel high-frequency sounds made by rodents to the bird's ear openings.* **Third photo:** *A coyote can hear a mouse squeak at several hundred yards and detect faint rustlings beneath a foot of snow.* **Bottom photo:** *The badger has poor eyesight, but relies on its keen senses of smell and hearing to locate ground squirrels and other prey.*

The rattlesnake's venom is delivered by two fangs that fold up inside the snake's mouth when not in use.



The snake's forked tongue "tastes" the air and carries airborne molecules to the Jacobson's organ.

other means of perception must come into play. And a rattler is equipped with two effective devices.

The snake's relentlessly active forked tongue is the gathering mechanism for a three-part system that operates like a very sensitive nose. In the darkness, the snake darts its tongue incessantly in all directions, gathering airborne and earthbound scents in the form of chemicals that the prairie dog's body has left behind. The rattler continually deposits these scents on a pair of pads located on the floor of its mouth. The scents are then transferred to two olfactory organs, called Jacobson's organs, embedded in the roof of its mouth.

Because the rattler's tongue is forked, each tine is able to pick up greater or lesser concentrations of scent left by the prairie dog, much like two radio receivers can locate a radio signal by triangulation, allowing the snake to detect the direction its prey is fleeing.

Once the rattler closes in for the kill, however, a different James Bondian device kicks in. Two pits located between the rattlesnake's nostrils and its eyes, and giving it the name "pit viper," are finely sensitive to heat—so sensitive that they can detect heat emanating from warm-blooded animals once they are within the snake's striking distance. In the total darkness of the prairie dog burrow, the snake's heat-sensing pits lock in on the panicked prairie dog and guide the trajectory of the snake's strike as accurately as its eyes could in bright daylight.

Once the snake's erectable fangs have injected their venom deep into the prairie dog's flesh, the rattler waits a safe distance away, avoiding snapping teeth and slashing claws until the toxins begin to paralyze the frantic victim. Then it moves in to swallow the prairie dog whole, head first and still alive.

Each of the rattlesnake's lower jaws is a separate unit which it can open at the front of its mouth and also the back where the jaws are only loosely connected to the skull. The jaws also open to the side at the front since they are only joined at the chin by a ligament. So, the huge gape of the snake's mouth is limited only by the elasticity of the skin and ligaments of the snake's mouth and throat.

Down this gaping maw the rattler pulls the body of its prey, by alternately sinking the recurved teeth of one jaw into one side of the prairie dog and then sinking the teeth of the other jaw into the other side of the prairie dog a little farther forward. This one-jaw-in-front-of-the-other process may take hours. The snake rests often. And when the act of swallowing dinner is complete, the bulging outline of the prairie dog is still visible beneath the rattler's skin, digestive juices working on it inside and out.

It may come as some relief to know that some rattlers have been known to go a year between meals, and that most of us don't have them living in our homes. But we do have spiders. And, well, talk about James Bond!

Like rattlers, spiders have two erectable fangs that they can flip out, like switchblades, from grooves in jaw-like contraptions called *chelicera*. Flanking these biting parts are a pair of short appendages, called *pedipalps*, used for grasping prey. And behind the pedipalps are eight legs, four on either side.

Most spiders also have eight eyes that don't work very well, which may explain why they need so many. The eyes are useful only within inches of the prey. To make up for their Mr. Magoo-like vision, spiders sport supersensitive hairy legs. Their receptor hairs, called *trichobothria*, are

embedded in membranes packed with nerve endings. Delicate air currents sent by the wings of a moth or housefly move the hairs which activate the nerve endings which, in turn, calculate the direction of the air currents, so a stalking spider can move in on its prey.

But at the heart of many spiders' bag of predatory tricks is its web, which is made of silk and produced by its own body out of amino acids. "Silk," writes Christopher McGowan, "is a most versatile material, which spiders use for all manner of things, from lowering themselves from great heights to tying up prey. The silk is manufactured by several glands in the abdomen, each producing a silk for a particular purpose. The finished products are ducted to the spinnerets, which are small appendages located at the end of the spider's abdomen. There are three pairs of spinnerets, which are like mobile fingers, and the silk is discharged through a number of small spigots located at their ends."

Many spiders build the familiar orb web with silk spokes radiating from a central hub and connected by a ladder-work of cross threads. These cross threads are sticky so bugs struggling to free themselves only get further entwined in the webbing. But the spokes of the web are not sticky, allowing the spider to use them to travel across the web's surface without getting stuck.

Waiting patiently at the hub or the side of the web, a spider is called to dinner by vibrations transmitted through the web by an ensnared victim. The spider immediately approaches to identify what's on the menu by using hollow "taste" hairs located on its pedipalps. Then, it usually ties up its meal with silk before injecting it with venom.

"Spiders do not eat their prey in the normal way, by consuming solid particles," writes McGowan. "Rather, they drink the prey in a liquid form, which conjures some vivid mental images! The enzymes injected into the victim's body as part of the venom start liquefying the protein right away. This slurry, together with the victim's own body fluids, is sucked up through the puncture holes made by the fangs, using the pumping actions of the stomach. At the end of the process, which may take several hours, all that is left of the insect's body is the hollow husk of its exoskeleton...an unrecognizable mass of tissue—with bones protruding if their victim was a vertebrate."

And this is all happening in the corner of your living room or under your bed as you sleep!

It's important, however, to put a little perspective on predators and predation by remembering where we humans fit into the eat-and-be-eaten picture. We sit up there somewhere near the very top of the food chain. We are hunted by nothing in Montana these days except the occasional grizzly bear or mountain lion. But we still chow down heartily on deer, elk, antelope, and moose, not to mention cows, sheep, pigs, chickens, fish, and sometimes even snails and frogs.

We are the ultimate predator, and we have been since our early origins when we relied on hunting for our survival. And unless we adhere to a strict vegetarian diet, grabbing a bite to eat still often means consuming something that once mooed, oinked, bugled, or swam in a stream. Yet we seem intellectually removed from our predatory ancestors. Still, unless we hunt or fish, the only thing that has changed in our role as predators is that we have domesticated our prey so it is easier to kill, and most of us leave the killing to somebody else.

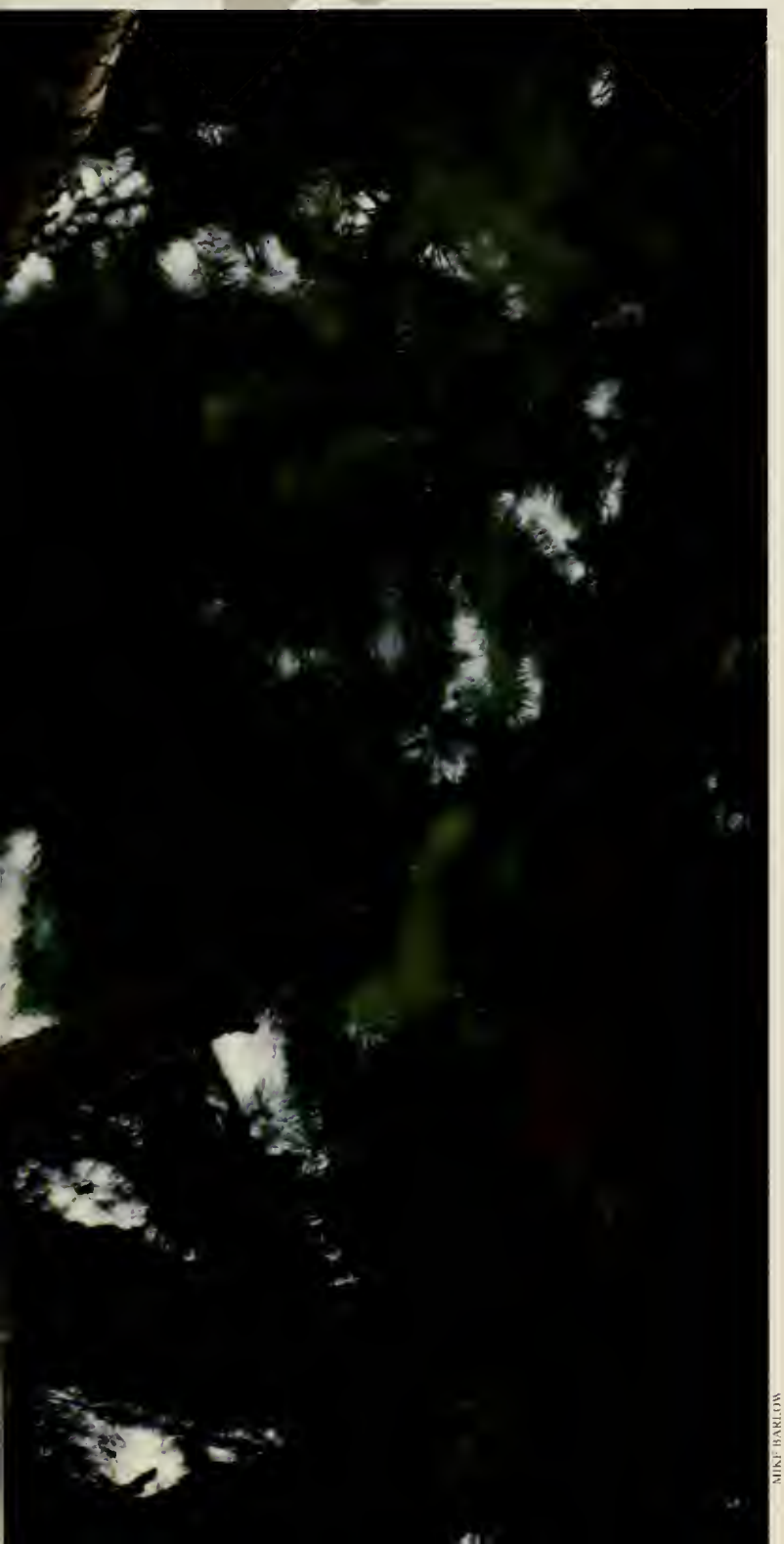
I guess that makes a lot of us predators once removed. ■

JOHN LAMBING

The spider's silk, manufactured by several glands in the abdomen, is used to tie up prey before injecting it with venom.

Counting Cougars *in the* Garnets

by JAMES HAGENGRUBER



MIKE BARLOW

MIKE BARLOW

The biologists and houndsmen race across the windswept ridge. They are grasping chains attached to English coonhounds that are pulling with a strength that could uproot stout ponderosa pines.

A dead elk calf lies covered in a blanket of twigs, soil, and leaves. The blood is still red surrounding the gnawed hindquarters. The elk must be fresh; only hours ago, it was grazing on this very slope before being surprised by a mountain lion, suggests one of the biologists. Judging from the condition of the kill, and the actions of the coonhounds, the predator is still near—very near.

Dog tails are cranking wildly. Powerful noses are lifted from the ground to suck in the cat scents blowing uphill from a thick stand of lodgepole pine. The houndsman reads his dogs and screams the command used by rogues and villains in many an old-time horror film: "Release the hounds!" But this is no movie set.

This is a steep slope in the Garnet Range, between Interstate 90 and Highway 200, from Avon to Bonner. The hounds—Sky, Jeannie, Radar, and Pete—race toward the lion that is lurking somewhere in the jungle of new-growth pine.

The pursuit is all part of the early stages of a decade-long Montana Fish, Wildlife & Parks (FWP) study that research biologist Rich DeSimone hopes will redefine how the state manages its growing lion population.

The current lion management strategy allows a certain number of lions to be killed in a given area. This harvest "quota" system is primarily based on harvest information from previous seasons. Because of the rapid changes and expansion in lion habitat, FWP has no benchmark figures to use as indicators of a healthy lion population. In fact, there is wide dispute about what constitutes a healthy lion population.

DeSimone says the quota system will only work if it is backed by population trend data gathered with proven census tools. Right now, too much guesswork is involved, he says. "We need better tools to manage lions."

Houndsman Bob Wiesner of Missoula feels quotas are often set too high. "The high quotas give new houndsmen the idea that there's always been a lot of lions and that they are doing the sportsmen a favor by killing the lions," he says.

Lion hunting is an emotionally charged issue—especially since hounds are the most practical way for hunters to harvest lions. In other western states, voter initiatives have banned or strictly limited lion hunting. Without hunters and with a growing number of lions, these states must now exert "enormous amounts of money and time to control lions," DeSimone says.

He also hopes that a thorough study of lions and the effects of lion hunting will help Montana manage its lions more scientifically. A primary focus of this study will be evaluating changes in the number of lion tracks on established winter routes as a tool to measure population trends in hunted populations. "No other state has been able to do it," DeSimone says. "It's very, very hard. At present, we know whether lion harvests and lion sightings are increasing or decreasing, and whether we're seeing more or fewer lion tracks. But we don't know what relationship, if any, exists between these observations and the actual lion population."

In five minutes time, the four hounds have chased the lion up a tree. The young male, which is already wearing a radio-collar, is silent and stares down at the dogs. DeSimone says this lion does not need to be tranquilized because his collar is large enough and has ample power left in its batteries.

More than 35 lions in a 1,000-square-mile area—including the specimen twitching its long tail in the tree above the research team—have already been radio-collared. But now, says DeSimone, the study area has been reduced to about 300 square miles to focus intensely on a small number of

FWP PHOTO

MIKE BARLOW

Above: *Houndsmen Bob Wiesner (left) and Brian Shinn with a tranquilized lion in the Garnet Range study area.* **Left:** *Mountain lion tracks are about three inches long with four teardrop-shaped toes.*

MILO BURCHAM

Mountain lion kittens weigh between 10 and 15 pounds when they are weaned at two to three months of age; they stay with the mother for 1-1/2 to 2 years. This radio-collared kitten, held by research biologist Rich DeSimone, will provide useful information on lion movements, behavior, and mortality.

lions. Hunting has also been closed within the boundaries of the study area for the next three seasons. Current kill rates are high in the research area, and closing the area to hunting will help to keep the marked lions from being harvested.

By removing hunting temporarily, DeSimone and his crew hope to document an increase in lion numbers over the next three years. Then in fall of 2003, hunting will resume and the lion population will be reduced during the following three years. DeSimone hopes these actions will produce the kind of population fluctuations needed for a good test of indirect lion survey techniques, such as track counts.

The researchers and houndsmen, including Wiesner, gather their gear and head back to the truck. They will keep on searching today and will try to find this lion's brother.

The group pauses to eat sandwiches and catch their breath—the terrain strains the lungs of even DeSimone, a man who recently qualified for the Boston Marathon. Wiesner, a track coach in Missoula, also seems winded. But perhaps it's from the excitement of the pursuit.

The 54-year-old coach and physical education teacher likes to compare lion hunting with his other passion: pole vaulting. "They are both adrenaline rushes and they are both very technical," Wiesner says. "It's so neat to see the athleticism of the cat paired against these dogs."

Wiesner has chased *Puma concolor* for nearly three decades and is one of the state's most experienced houndsmen. When DeSimone needed to catch and collar all the lions in his rugged study area, he called Wiesner.

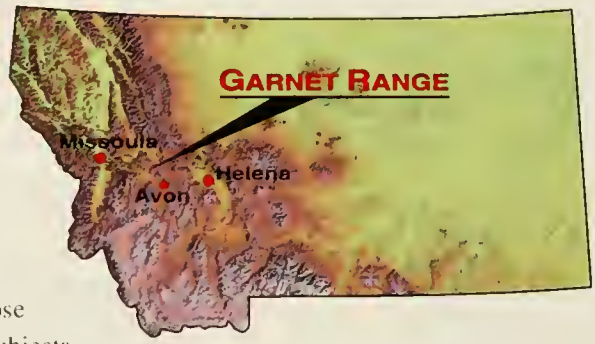
More seasons than not, Wiesner does not kill the lions he pursues. This is the way of many traditional houndsmen, he says. "I don't have to kill anything to be successful." Wiesner has a deep respect and admiration for his quarry and he hopes his work will help to both preserve the cat and preserve lion hunting. "My life, my energy is focused on lions," he says. "I want to be able to hunt lions 25 years from now."

Even though the study might provide valuable management data, the future of lions in Montana—and lion hunting—will only be secured if residents can learn to accept this animal as a piece of the ecosystem, DeSimone says. "There's something about the fear and hatred of this beast that runs so deep in some people," he says. Remember the scenes of the snarling, roaring lions in westerns like *Bonanza*? Or, how about the man-eating leopard in *Tarzan*? The depiction is inaccurate and has further cemented views that lions should be destroyed, DeSimone says.

BOB WIESNER

Prior to being radio-collared and released, captured lions provide researchers with an array of biological data.

Once all the adult lions in the study area are collared and documented, DeSimone and his cohorts will closely monitor the cats in the defined area. They will look at how hunting, chasing with hounds, and local development along the much-used Blackfoot River affects the cats. They will watch lion dispersal and predation patterns. They will keep close tabs on the health of their subjects, and monitor deer and elk herds. They will evaluate the effectiveness of track studies. In short, a very detailed population picture should emerge of the lions living in this section of the Garnets.



During the last years of the study, the data might be used to set new harvest quotas for the area and to test new ways to manage lions, DeSimone says. Ultimately, the study will help FWP biologists manage lion numbers in a way that considers human safety, livestock concerns, and prey populations, while balancing lion hunting opportunities with the well-being of the predators themselves. ■

PETE & ALICE BENGEYFIELD

If you live in mountain lion country...

If you live in deer or elk habitat, mountain lions are probably close by. To reduce the risk of problems with lions on or near your property, follow this list of precautions. Prevention is far better than confrontation.

- Closely supervise your children when they are playing outdoors. Make sure they are home before dusk and are not outside before dawn—times when lions are most active. Talk with them about lions and teach them what to do if they encounter one.
- Eliminate hiding cover for lions around your home. You don't have to remove all vegetation, but you should remove dense trees or shrubs so that a lion can't come into your yard undetected.
- Consider outdoor lighting for areas that your pets or family may frequent at night.
- Do not attract wildlife, especially deer, into your yard by providing food or salt licks. If you have a garden, consider deer-proof fencing.
- Use native plants in landscaping projects. Many non-native plants attract deer, which in turn attract lions.
- Roaming pets are easy prey. Bring pets in at night. If they are left out, confine them in a kennel with a secured top. Do not feed pets outside as this attracts not only young lions but many small animals that lions prey upon. Place domestic livestock in an enclosed shed or barn at night.

NELSON KENTER

If you meet a mountain lion...

Most Montanans live all their lives without glimpsing a mountain lion, much less confronting one. But if you hunt, jog, hike, or bike in lion country (deer and elk habitat), the possibility exists. Mountain lions are carnivores at the top of the food chain, and their actions are unpredictable. Here are some precautions and suggestions to keep in mind.

- Travel with a friend or a group and make enough noise to prevent surprising a lion. Keep children close to you at all times, and don't let dogs run unleashed.
- Carry a sturdy walking stick or better yet, a capsaicin-based pepper spray. Be sure you know how to use the spray and keep it handy (in a holster or fanny pack).
- Your behavior is critical if you encounter a lion. Never approach one. It will normally avoid a confrontation if given a way out.
- If the lion is closer than 50 yards and is staring intensely, crouching, or creeping closer, it may be getting ready to attack. Try to stay calm and do not turn your back or run—running could trigger a predatory response.
- Take out your pepper spray or pick up a branch or rock.
- If you are with small children, pick them up. If you're with a group, band together.
- Be vocal, remain upright, and maintain eye contact. If your arms are free, enlarge your image by waving your arms or your jacket. The object is to convince the lion that you are not prey and that you are a danger to it.
- If a lion attacks, don't try to hide or "play dead." Many people have survived lion attacks by fighting back with everything from rocks, sticks, and fishing poles to bare fists.

Caddis by

by E. Donnall Thomas, Jr.

We put in at Dick's house late that afternoon with the idea of drifting right on through the middle of town. Since the town in question was Livingston, Montana, this plan had more merit than most proposals to float through the middle of a town, but the noise and the busyness all around us still felt unsettling. The summer had been wet and the river was high even though August was just around the corner. Junk—the usual staple of midday fishing on the Yellowstone at this time of year—had not worked earlier, and there was no reason to think it would now. Muddlers and Woolly Buggers and allied exercises in bad taste produce reliably on the 'Stone when you can get them to the fish, but the edges of the river were still up in the willows, and casting there from the driftboat somehow felt like a waste of time and proved to be just that. But we couldn't forget the events of the previous evening, when the caddis appeared on the water at last, the trout rose from the unruly depths to consume them with abandon, and we caught browns and rainbows until the light faded from the western sky and broke our hearts as it disappeared.

High water changes all the rules of the game. It should have been easy to walk down to the boat and get in with no gymnastics, but the surge of current shooting downstream from the Park made that impossible. Dick steadied the boat from shore while I climbed over the side and sat down at the oars, and then Annie held the boat while Dick lunged into the bow. When she pushed us off and waved good-bye, the current swept us away and we felt the responsibilities of life recede behind us.

Dick fished his standard Yellowstone River cocktail—a Royal Trude preceded by a large Hare's Ear on a dropper—for half a mile without a hit. Finally I pulled over on a flooded gravel bar and we both got out to work the riffle next to it. I pitched a George's Brown Stone nymph into the broken water for 20 minutes without so much as a suspect bump from a whitefish, then we started downstream again. The river really left us nothing to do but cast halfheartedly against the bank and wait for darkness and the great perhaps.

As the shadows began to stretch across the water and lose their definition, I braced myself against the boat, clipped off whatever nonsense I had been fishing, and tied on a deer-hair caddis pattern. No fish were rising yet, and my choice was based more on logic than data. By this time it was either going to happen with caddis up top or it wasn't going to happen, period.

Livingston's tender underbelly was sliding past us on the left-hand bank when the

Night

DenverBryan.com

Every cast was tempered by the understanding that something truly huge and unforgettable might come up out of the gloom and smack my little deer-hair caddis at any moment.

JIM HEUSTESS

first fish finally struck. The fly was hard to see despite its buoyancy and the generous outline of its wing, but suddenly it was absent longer than current and light could account for and I struck. The fish was an acrobatic 16-inch rainbow, and it did everything it was supposed to do. "You're up," I told Dick when I finally leaned over the side and released the fish.

We traded places as the current pulled the boat around in an eddy, and by the time I straightened up behind the oars it was clear that something strange and terrible was happening all around us. The river was suddenly alive with feeding fish, the same river that had greeted our earlier efforts with such impassive silence. Dick had an immediate strike on the dry-fly half of his tandem rig, and he fought the fish to a draw while I ran us aground on another flooded gravel bar. Then we were both out in the current on foot, surrounded by the steady surge of high water and more eager trout than either of us could have imagined.

Under ordinary circumstances the riffle would have been an awkward affair to fish, since the water broke unevenly over the bar and swept around in circles without ever offering the sort of smooth, laminar flow that seems to beg for a fly line. That night, it simply didn't matter where you stood or where you cast or, within the broad limits of accuracy defined by caddis patterns, what the fly looked like upon arrival. It didn't matter because the Yellowstone's rainbows had all gone crazy at once. I caught a second fish and remembered teenaged girls fainting at Beatles concerts in the sixties. I caught a third fish and imagined medieval French peasants gone mad from hallucinogenic rye. I caught a fourth fish and dreamed of mindless riots at soccer games. By the time I landed the fifth fish I had exhausted my supply of analogies to describe collective hysteria, and there was nothing to do but keep on fishing mindlessly. Anyone capable of tying a #14 dry caddis pattern to the end of a leader and hitting the water with it could have caught a lot of nice trout; that Dick and I each did so isn't exactly an accomplishment that belongs on our resumes. This bothers some people who really ought to know better, as if fish don't

really count unless catching them involves consternation. The joyful ease of it all sure as hell didn't bother me, not after all those long, fishless miles on the river. I felt like a hog in a pile of ripe garbage. The way I saw things, we had paid the price of admission.

That we were fishing the Yellowstone certainly helped erase any guilt that might accrue from the staggering number of fish we were catching. The 'Stone is a tough river that makes its enthusiasts suffer as much as any body of water I know. It is also home to more *big* fish per mile than any other river in Montana, and every cast was tempered by the understanding that something truly huge and unforgettable might come up out of the gloom and smack my little deer-hair caddis at any moment. This is just the kind of possibility that motivates guys like me to fish rivers like the Yellowstone, and to keep on fishing them even after they have spurned my advances for days on end.

The browns never even made an appearance. I don't know why the mysterious cues that trigger fish to feed are so species-specific, but we didn't raise a single brown that night, or a single cutthroat either, as if whoever issued the invitations to the party meant to snub them. It would have been nice to see some dull amber flashes out there in the darkness, but with all those rainbows, complaining about the lack of brown trout seems positively selfish.

The sun's dull glow was fading from the western sky, and the lights of town rose slowly to challenge the darkness left behind by its departure. Artificial lights ordinarily bother the hell out of me outdoors, and have even inspired an occasional act of vandalism, but on this particular evening they were little more than a distraction. They made me feel invisible somehow as I fished on, content in the knowledge that I could see the town but the town couldn't see me, while I stood right in the middle of Livingston and caught fish that the people on the other side of the lights could scarcely imagine.

The noise of feeding trout rose above the sound of the current out in the darkness, and when I cast next, I closed my eyes and listened for the particular sound of one fish rising to my

The fish was an acrobatic 16-inch rainbow, and it did everything it was supposed to do.

AL TROTH

The fact is, you don't need to be an entomologist to catch lots of fish on caddis imitations, at least if you're smart enough or lucky enough to be in the right place at the right time.

fly above the rest of the hullabaloo, like the sound of one hand clapping. Then that sound was there and I struck, and the rod jumped in my hands as if to confirm that I had established some private language with the river. This was getting spooky.

And when it comes to fishing that is spooky, as opposed to simply good or fast or memorable, I note with surprise how often it involves caddisflies. Even at its peak, there is a certain sense of dignity and order to the classic mayfly emergence, while caddisfly hatches are helter-skelter affairs, ranging from utter fizzle to the sort of uninhibited craziness on the Yellowstone that night. And when caddis are at their best, it just doesn't get any better.

Despite their significance to trout and trout fishermen, downwings suffer from a curious lack of respect, a phenomenon that says more about the way people think about flyfishing nowadays than it does about the way they actually fish. Name three species of caddisflies important to trout. Don't worry, I can't either. The fact is, you don't need to be an entomologist to catch lots of fish on caddis imitations, at least if you're smart enough or lucky enough to be in the right place at the right time. My sweetened condensed version of caddis lore is an exercise in simplicity: There are adults and pupae and larvae. There are big ones and little ones, brown ones and gray ones and tan ones, and that's about it. For practical purposes, even this limited fund of knowledge will get you through a lot of caddis hatches. Some people are evidently put off by this lack of scientific precision, but then they're usually the same people who spend their stream time worrying about the stock market. Personally, I prefer the hog-in-garbage model of good fortune when I'm lucky enough to stumble upon a genuinely insane caddis eruption, but that's just the kind of guy I am.

This edition of the caddisfly phenomenon involved a tan #14 something that my buoyant deer-hair version imitated quite well, which was just fine for a number of reasons. I was well stocked with the right fly, since the hide of one whitetail buck will produce about a million caddis fly imitations, and tying them appeals to the use-every-scrap ethic I bring to the chase each archery season. Furthermore, deer-hair patterns are durable under stress, an important consideration in wild-paced fishing like this, when time is finite and better spent catching fish than fumbling in fly boxes for replacements. Finally, deer-hair caddis are easy to see, an important consideration in big water like the Yellowstone, especially in failing light.

Darkness and the trauma of landing all those fish finally caught up with my deer-hair pattern, however. A close-range inspection against the sunset showed it to be mauled and battered beyond recognition, and even though this didn't seem to bother the fish any, it bothered me. I clipped off the tattered remnant and plucked a Royal Trude from one of my fly boxes. This pattern resembles a caddisfly in outline alone, but it is a wonderful floater, highly visible, and an old Yellowstone River standard for good reason, as Dick was proving a few yards downstream in the riffle. Now all I had to do was attach it to the end of my leader.

Like all lucky boys, I grew up thinking my father was infallible, especially in the outdoors, where he seemed to catch every fish he cast to, hit every grouse he shot at, and enjoy a vast and mysterious body of wisdom concerning everything we saw and did together in the field. My first indication this infallibility might be more perceived than real came one night as we stood together somewhere casting to a pool full of rising trout. He needed to change flies for some

reason, but he just couldn't do it. He held the tiny hook and the gossamer tippet at varying distances from his eyes, but nothing worked. Finally he asked me in a terse, controlled voice if I might spare a moment to tie the damn fly to the damn leader for him and I did. He was in his mid-forties then and I was in my early teens, and of course I just didn't understand. Now I had mid-forties visual problems of my own, and I suddenly understood his frustration perfectly well.

Darkness was seriously upon us. By holding the Trude and the end of the tippet up against the luminous riot of pinks and oranges in the western sky, I could identify the parts of the puzzle, but not their relationship. Needless to say, the crescendo of hungry trout noises and the constant patter of joyous expletives from Dick did nothing to calm the panic. I brought the fly up close, but my head only retreated reflexively. I held everything out at arm's length, but the fly just disappeared. Finally I stabbed angrily at the hook eye with the end of the tippet until I managed to impale it purely by chance. I let go of the Trude and saw it hanging there from the strand of 5X with an overwhelming sense of relief.

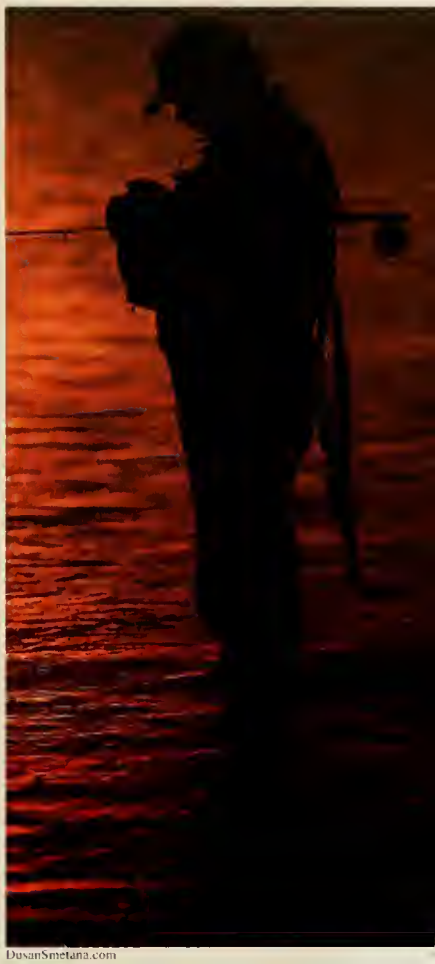
The double skipknot may be archaic and inefficient in terms of breaking strength, but it can be tied reliably by feel—a critical consideration in ridiculous situations like this. One loop-over, two loop-overs, and one pull-through later I was fishing again, the Trude's bushy wing plainly visible against the reflected light from the river. If the sight of the fly on the water felt like a triumph, the strike that followed was its logical reward.

When you run into one of your buddies after an evening like this and he asks you how you did down on the river, saying "Well, I caught twenty-three fish between twelve and nineteen inches long" doesn't really convey as much information as saying, "Man, it was utterly outrageous!" even though it seems as if it should. So I wasn't counting fish, and neither was Dick, but for a moment I almost wished that we had been, more as a tribute to the phenomenon than because we needed one of those pointless resume entries. I really don't know how many fish we caught during the hour we stood there in the riffle, but it was a lot, so many that after awhile we stopped talking about it because there was nothing left to say. We just stood there, fishing relentlessly, casting into the dark well after the flies became invisible, and still we caught fish by feel and guesswork and the occasional random strike. If the moon had been full we might have stayed there all night, but finally I told Dick that I just couldn't stand it anymore. Evidently he couldn't either, because when I reeled up the last of the line and climbed back into the boat he did the same without protest.

The only remaining illumination came from the lights of town. We had a mile or so of water left before our takeout. The river was running proud and strong, and since the Yellowstone is one of the few Montana Blue Ribbon streams that can drown you with impunity, I felt a surge of anxiety as we pushed off into the current. There was really nothing to do but surrender to the power of the river. At one point we wound up in the middle of some vigorous standing waves with enough rise and fall to make us lose track of all the lights from town, but we got through it all right in the end. Then, finally, the takeout was there, and so was Annie and the truck, and it was over.

We were tired, and nobody said much as we loaded the boat onto the trailer for the short drive back upriver to Dick's house and cold beer. As I started to break down my flyrod, I paused under the streetlight and studied what was left of the Royal Trude. Nothing remained but a hook and a bedraggled puff of white hair, but the fly had died honorably in the line of duty, so I clipped it off and dropped it into my caddis box where, if nothing else, it might remind me of possibilities on days when the fish were laughing and nothing worthwhile seemed within reach.

For there will be such days; this much is certain. Some will come on this river, at this time of year, when we are doing just what we did that night. If I have learned anything over the years it is that peak experiences are seldom easily reproduced, and almost never as easily as writers would sometimes have you believe. But each time we try and fail, the sting of disappointment should be tempered by memories like these: of rivers that came alive just when we needed them to; of fly patterns that looked just right to the fish even if they didn't look just right to us; of secrets shared between fish and anglers as an indifferent world went about business of its own while we fished on into the darkest corners of the night. ■



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In Praise of Little Streams

AL TROTH

In Montana, small streams too often get overlooked by anglers in a glassy-eyed rush to fish fabled rivers like the Missouri, Madison, and Bighorn.

by Bruce Auchly

For anglers willing to explore small mountain streams, solitude—and eager brook trout—await.

Back in early February, a man from West Virginia called to talk about fishing. Fair enough. As a regional information officer for Montana Fish, Wildlife & Parks (FWP), I get paid to talk to people about fishing, among other things, in north-central Montana.

"My son and I are coming out this summer," he said, "and we want to know where we can go fishing." Hmmm. That's like a starving man entering a supermarket and asking if there's anything to eat.

After a few minutes of questioning, asking his likes and dislikes, I found out all he wanted was to trout fish in small mountain streams. I could have kissed him. As it was, I told him some of the places I fish, which is about the same.

In Montana, small streams too often get overlooked by anglers in a glassy-eyed rush to fish the Missouri, and the Madison, and the Big-horn, and the other big-name rivers. An embarrassment of riches, I suppose. But it's still a mistake.

This is not to degrade Montana's popular trout rivers. The state's big rivers produce big fish and lots of them. Nothing wrong there. Except they are not everyone's cup of Lipton.

"A lot of people don't like big water," says Boyd Wolverton, owner of Wolverton's Fly Shop in Great Falls. "It's too intimidating."

Large rivers can be hard to read: Do you fish close to shore or in the middle? Do you

PAUL P. UPDIKE

really need a boat? Where are the underwater structures and holes that hold fish?

Boyd, 66, grew up in Great Falls, worked 30 years for the Montana Department of Transportation, then retired to open a fly shop. Ask him a question about fishing around north-central Montana and you'll get a lifetime of answers. Like a small stream along the south end of the Blackfeet Indian Reservation.

"Dad always took us there in the late 1940s and early 1950s," Wolverton says. "And we caught a lot of fish, and saved some for supper. The water was so clear, you had to stand in the streambed to see if there was any water in it."

More tall tales later. Let's start by defining a small stream. Wolverton, and others, list solitude as a key ingredient, along with scenery and wild trout.

Those images are easy enough to picture. I can think of one in the mountains near Great Falls. It cuts and slides through canyons before joining a handful of other creeks and tumbling onto the prairie floor. The stream holds trout big and small: 19-inch cutthroats and 8-inch rainbows and lots in between. I know, I've caught them.

There's another stream that meanders through a meadow high in the Little Belt Mountains. It's a mile hike in and loaded with brookies and rainbows nearly all in the 8- to 12-inch range. Catch a 14-inch fish, and you've got a monster. What the salmonids lack in size, however, they remedy with eagerness. Few people, apparently, want to hike a mile to catch 10-inch trout all day.

I didn't say where the streams are, and I'm not going to. That's not the point. This is a tale on the importance of small streams, an essay on how they function. Later, we'll discuss how to find your own small stream, and throw in a little how-to.

Back to definitions. John Gierach, in his book *Fly Fishing Small Streams*, sums it up nicely: "... let's say a small stream is one that you can cast across easily just about anywhere on it, that you can wade—and often even cross—in hip boots, that is way too small for boats, and that has most of its structure pretty well exposed to view."

LARRY JAVORSKY

Right: *High-riding flies like this Grizzly Wulff are perfect for fishing riffles.* **Below:** *In late summer, cutthroats and other trout tune in to grasshopper imitations.*

DANIEL D. LAMOREUX

Pretty but unscientific. Okay, how about science? Surprisingly, fisheries science doesn't seem to have a definition of a stream, says Chris Hunter, operations manager for FWP's Fisheries Division. Hunter should know. He wrote the book on trout streams. Specifically, *Better Trout Habitat: A Guide to Streamside Restoration and Management*, published in 1991.

Rather than definitions, fisheries biologists refer to *orders* of streams. A first-order stream has no tributaries. That's easy: a small mountain stream, maybe too small for our purposes. A second-order stream is where two first-order streams come together—probably what we're looking for. A third-order stream is the product of two second-order streams merging. That's still within our parameters, but we're probably at the edge. A fourth-order stream is the product of two third-order streams. And so on. "The idea of stream orders is to get a general sense of size," Hunter says.

Another difference between small streams and big rivers is fish size. Trout in small streams don't grow as large as their big river cousins, at least not as many of them do. Yet, put a man in a jail cell or a hotel banquet room and he could still become obese. "If there's enough food," Hunter counters.

Small-order streams don't have the food of big rivers because they are less productive. Mostly sunlight and geology drive productivity. "You need to get energy into the system," Hunter explains. "Small streams depend on

leaf litter, pine needles, and the like to provide energy to run the river."

When leaves fall in a small stream, microbes break them down. Aquatic insects eat the microbes. Fish eat the insects. That process happens in waters big and small. The difference between the two waters begins with warmth from sunlight. To a point, warm water is more productive than cold water. Warm water supports more microbes, more aquatic insects, and bigger fish. "As you get into larger order streams," Hunter says, "they are broader, they get more sun and they get vegetation growing in them."

If leaf litter is the gasoline, then sunlight is the engine. The more sunlight a stream receives, the greater the aquatic horsepower. Small streams are motorcycles; big rivers are tractor-trailers.

Then there's geology. Smaller mountain streams usually flow through rock. Larger order streams often flow through soil, and soil is more productive than rock.

In Montana, another geological event drives productivity: the Continental Divide. Streams west of the divide generally are more sterile than streams east of the divide. "Rocks west of the divide don't have as much mineral content," says Hunter. And there's the Yellowstone National Park factor. Water coming out of the park is a nutrient-rich soup, which feeds the headwaters of the Missouri and Yellowstone rivers.

One last thought on productivity. All the food in the world won't produce big fish if they have limited room to grow, or have to constantly fight the current to survive. Deep holes allow fish to rest and not expend as much energy as in shallow, fast water. And small mountain streams don't have enough deep habitat to support big fish.

Now, let's briefly look at how to fish small streams.

"I'd use an eight-foot [fly] rod," Wolverton says. "Either a two, three, or four weight. You only have to throw a fly ten to fifteen feet."

Carpenters don't use sledgehammers for finish work; anglers shouldn't use big, heavy rods and lines for small water bodies. The fish are smaller, so lighter tackle makes the sport more challenging. On the other extreme, it doesn't make sense to use tackle so light it exhausts a fish to the point of death, if catch and release is the rule.

For flies, Wolverton recommends a humpy or any of the Wulff patterns, like a Royal or Grizzly. Fishing a dry fly on a small mountain stream can be a near-religious experience. But as in bigger waters, sometimes a nymph works best. It's been said often that most of a trout's diet comes from submerged insects. So try a Pheasant-Tail, Prince Nymph, Lightning Bug, or the all-purpose Hare's Ear. Or use a dry fly for a strike indicator and tie on a #16 or #18 nymph.

Small mountain streams seem to be made for flyfishing, but there is nothing wrong and plenty right with catching grasshoppers to put on a hook. Or sticking a bobber 18 inches above a worm and letting the current carry the line into a pool. A few, very few, anglers first learn to fish by flyfishing. It's usually a graduated process, and in this case, it's perfectly okay to never graduate.

Finding a small stream full of trout in Montana is not that difficult. Take any road into the mountains, find a

LARRY JAVORSKY

One attraction of small streams lies in their fishability—boats aren't required, wading is easier, and "reading" the water is less of a chore. Flies, lures, and live bait work equally well.

creek, park, hike, and fish. The choices are overwhelming, but bad choices are possible, like tributaries of Belt Creek in the Little Belts that are victims of mine runoff. Even if you find a reasonable fishing spot, how can you discover if the next drainage over is better or worse? As with everything these days, the answer lies on the Internet.

Start with Montana's Natural Resource Information System web page: www.nris.state.mt.us. Look among the NRIS programs and click to water information systems. That will take you to the Montana Rivers Information System (MRIS), the starting point. MRIS is a database that contains information on fish species distribution and stream levels.

At the MRIS fisheries component page, you can find a small stream, what's in it, and the quality of its fisheries resource by FWP region or by county. Pick a spot, pick a stream, pick a fish species. Of Montana's 4,500 streams and rivers, 934 are rated outstanding, with another 411 listed as high value. The rating system awards points in several areas, such as type of fish found, aesthetics, fishing pressure, fish abundance, and stream accessibility. It's a handy way to pick a stream from your computer, though you'll still miss some dandies.

True story. Several years ago I was traveling with a fisheries biologist to a meeting in central Montana. As we drove, a small stream paralleled the highway. This one was typical: begins in the mountains, empties onto the prairie, eventually joins the Missouri. In the transition from mountains to prairie, the creek's water slows, forms pools, and picks up nutrients, growing fish outsized for their home. I once saw an FWP fisheries crew electroshock a 19-inch brown trout in that stream at a spot not two yards wide.

"If that stream were on the East Coast," my companion said, "people would write books about it."

I looked up from the steering wheel to eye a portion of the stream winding past a black Angus in a farmer's pasture.

Then talk switched to another small trout stream that is popular but more than 100 miles from any city. "If that stream were on the East Coast, it would draw people from around the world. People would make pilgrimages to it."

People do make pilgrimages to fish Montana, but sometimes they miss the best places. ■

DALE C. SPARTAS

Since long casts aren't required, shorter flyrods and light lines are made to order for small streams. Fishing buddies are welcome too.

LEAVE WILDLIFE BABES IN THE WOODS

It's springtime again in Montana—a time of fragrant wild flowers, soft rains, and the birth of young wildlife. The attraction of young "orphaned" wildlife is irresistible, and many well-meaning people can't resist the temptation to "help." It may seem like the humane thing to do, but all too often it's the cruelest, most inhumane action you could take.

Born in May and June, many young wild animals appear to be abandoned and helpless as they tremble in their hiding place, or seem to be lost. Young wildlife are not helpless and very rarely are they abandoned. The mother probably is gone only temporarily or, as with many wild animals, she instinctively remains a short distance away to avoid attracting attention to her young.

Other wildlife parents will go to great lengths to deflect attention from their young. A common bird named for its call, the killdeer, will mimic injury and flutter about to draw intruders away from its nest. Under these circumstances the discovery of the killdeer nest, with its soft, fuzzy babes, may lead someone to believe the young ones won't make it with a crippled parent. Taking young wildlife under these circumstances can only be considered kidnapping.

In many cases people take young wildlife with the hope of making a pet out of them. People will go to the extent of actually digging up a fox or coyote den to get the pups. The pups make nice, cute pets until they take a bite out of someone. It takes about ten times as much time and care to domesticate a wild animal as it does a dog or cat. And some wild animals never become completely tame.

What happens next is a sad story. Wild animals, whether taken to "help," or for pets, often end up as the responsibility of Montana Fish, Wildlife & Parks. As soon as it is apparent to the animal's foster parents that caring for young wildlife is extremely difficult, they show up at department offices asking, "Will you take it?"

DAVE BOOKS

Fawns may appear to be abandoned, but their mothers are almost always hiding a short distance away.

Each spring, FWP is asked to play nursemaid to numerous deer and antelope fawns, bear cubs, moose and elk calves, fox and coyote pups, raccoons, badgers, and even porcupines. Many of them die—it's very difficult to substitute for natural foods, and scours brought on by imbalanced body chemistry takes its toll.

Those that do make it are often destined for life behind the bars of a cage. Attempts are made to return the orphans to the wild, but it doesn't always work. Zoos are the likely answer for semi-domesticated wildlife, but most already have an adequate number of the common species and there just aren't enough places for them. Finally, with all options exhausted, the animals have to be put to sleep, just like unwanted pets.

As harsh as the consequences may be, the truth is that it doesn't need to be that way—if the wildlife babes had been left alone in the first place.

What should you do if you discover an apparently abandoned wild animal? In most cases, leave it alone. Just touching or picking it up may cause rejection by the mother because of the human scent. Birds, however, cannot smell well, and fledglings may be carefully returned to their nest. FWP should be notified of young wildlife that have been orphaned because the mother was accidentally killed.

It is illegal to possess or remove from the wild any game animal, game bird, songbird, furbearer, or bird of prey, and fines may be levied for such violations. Orphaned wildlife can only be handled by FWP personnel and there is nothing in the law to delegate this authority to anyone else. State law also prohibits people from having wild animals that may have rabies, such as coyotes, foxes, raccoons, and skunks.

Springtime brings with it the breath of new life, and our best wish is that all of this year's wild young have the chance to live their entire lives in the wild.—*Bill Thomas, Region 2 (Missoula) Information Officer*

STEVE KENLEY

The Ravalli County Fish and Wildlife Association recently presented its Nick Kramis Conservation Award for 1999 to FWP Region 2 (Missoula) Supervisor Mack Long, pictured here with association president Dave Majors (left) and association vice-president Harry LaFriniere (right). In presenting the award, Majors cited Long's "outstanding contributions to Montana's wildlife resources and promotion of sportsmen's interests at the local and state levels." Prior to becoming regional supervisor, Long was warden captain in the Missoula office. The award is bestowed each year on a deserving individual in memory of Nick Kramis, a long-time Bitterroot Valley sportsman and wildlife advocate who died in 1988.

Museum of the Rockies Welcomes Flyfishing Exhibit

Beginning June 3, the Museum of the Rockies in Bozeman will host "Anglers All 2000," a celebration of flyfishing in America. "I'm lucky enough to have seen the remarkable objects that will be brought to Bozeman for this exhibit," said Paul Schullery, historian and guest curator. "It's safe to say that in the flyfishing world they are unexcelled for their rarity, quality, and historical significance."

"The Museum of the Rockies is in a unique position to add the western perspective," explained Marilyn Wessel, museum director. "Many of western flyfishing's greatest heroes are local residents. Some of the world's finest gear was developed and is produced in this area."

The Northern Rockies is well known for blue ribbon trout fishing and local flyfishing legends. Three renowned Montana anglers, Bud Lilly, George Grant, and Dan Bailey, will be featured in the exhibit. Their fight to preserve the rivers they loved, the Yellowstone, Madison, and Big Hole, documented in the Montana Fish, Wildlife & Parks video "Three Men, Three Rivers," will be a key part of the display.

Many famous people call flyfishing their favorite pastime. Well known fishermen whose personal gear is displayed in Anglers All 2000 include Zane Grey, Babe Ruth, Glenn Miller, Winslow Homer, and seven U.S. presidents. On exhibit are Ernest Hemingway's Hardy Fairy rod, Bing Crosby's pipe and hat with flies, General George Patton's creel, Daniel Webster's rod and George Bush's fly box.

Anglers All 2000 will include fun programs for the entire family, both inside and outside the museum. Throughout the summer fly-casting, fly-tying exhibitions, and local fishing opportunities will entertain and educate.

Fly tiers of all ages and skills are invited to submit a fly to the Museum of the Rockies for display in the regional part of exhibit. "Over the past century, Montana fly tiers have participated in one of the richest folk art traditions in the country, and have influenced fly tiers everywhere," Schullery said.

For more information about this summer's exhibit or the Museum of the Rockies, visit the web site at www.montana.edu/wwwmor/ or call 406-994-2251.

PHOTO COURTESY OF THE MUSEUM OF THE ROCKIES

The Museum of the Rockies hosts "Anglers All 2000" beginning on June 3.

Sheep and Moose Permit Auctions Generate $95,000

The recent annual auctions of a bighorn sheep and a moose license to supplement Montana's bighorn sheep and moose management programs garnered $95,400.

Montana's 2000 bighorn sheep license auction at the annual convention of the Foundation for North American Wild Sheep (FNAWS) in Reno, Nevada, brought $95,000 according to Montana Fish, Wildlife & Parks' Glenn Erickson, Wildlife Management Bureau Chief. FWP received $85,500 of the sale to bolster research efforts on bighorn sheep, and to supplement wildlife trapping and transplanting budgets. FNAWS retains 10 percent of the proceeds for administration and its own bighorn sheep management efforts.

The Skyline Sportsman's annual meeting in Butte hosted the Montana moose license auction. The license sold for $11,000. The Skyline Sportsman's Club retains 10 percent of the proceeds and the remainder will go toward enhancing Montana's moose management efforts.

TIP-MONT Board Awards $9,450 to Callers

The TIP-MONT program's board of directors awarded $9,450 to 30 individuals who offered tips in 1999 that led to the apprehension of violators. Cases for which rewards were paid included overlimits of fish, unlawful possession of deer, wildlife harassment, wasted game, and a number of residency and license fraud violations, said Shelly Hiron, TIP-MONT coordinator for Montana Fish, Wildlife & Parks in Helena.

A record number of calls came into the hotline in 1999. "We logged 1,050 calls last year, the most in the 15-year history of the hotline," said Hiron. In 1996, TIP-MONT calls numbered 770. In 1998, 863 reports came into the hotline. Hiron said many TIP-MONT callers this year specifically stated that they did not seek rewards.

Hiron said the increase in wildlife- and recreation-violation tips appears to be related to a Montana public that is less tolerant of both fish and wildlife poachers and of vandals who destroy public property. "People want to protect Montana's fish, wildlife, parks, and forest lands. We hear it just about every day and not just during the hunting season. We are now answering a lot more calls that report violations at fishing access sites, at our state parks, and even in our national forests," she said.

The Montana Legislature authorized FWP to establish a toll-free fish and game violation hotline—1-800-TIP-MONT—and to offer rewards to those who call in tips. Since 1985, use of the line to report known or suspected violations of fish and wildlife laws has grown markedly. In 1997, the legislature expanded the authority of FWP to offer rewards for tips on violations that occur in state parks.

Each 1-800-TIP-MONT (1-800-847-6668) caller may remain anonymous and may be eligible for a cash reward. Callers do not have to testify in court. The line is open 24 hours a day.—*Tom Palmer, Information Bureau Chief, Helena*

Lands Use License Required for Recreating on State Lands

Recreationists heading afield this summer need to be aware that a State Lands Recreational Use License is required if, in the course of their activities, they will be on state land. Licenses are available from Montana Fish, Wildlife & Parks license agents for $10 for adults (ages 18 to 59), and $5 for youngsters (age 17 and younger) and senior citizens (age 60 or older). A $20 family license for up to six immediate family members living in the same household is also available.

State school trust lands, generally colored light blue on most ownership and access maps, are managed by the Montana Department of Natural Resources and Conservation (DNRC) to generate revenue to help support Montana's public schools. FWP game wardens enforce the laws and rules pertaining to recreational use of state lands for hunting and fishing.

The general recreational uses covered by this license do not include trapping, cutting or gathering wood, collecting valuable rocks or minerals, panning for gold, mining, or collecting or disturbing historical, archeological, or paleontological sites or specimens. Separate licenses or authorizations are required by the DNRC for these activities. For more information on state lands contact the nearest DNRC office, or call 406-444-2074.

DAVE BOOKS

Since the annual sheep license auction began in 1986, more than a million dollars has been raised to benefit bighorn sheep in Montana.

Montana State Parks Calendar

May

20-21—Paddlefest at Wayfarers on Flathead Lake
Come and try different types of kayaks at Flathead Lake State Park, Wayfarers Unit, in Bigfork. Call 406-752-5501.

21—Canoe and Kayak Demo Day at Frenchtown State Park
Demonstrations with new state-of-the-art canoes and kayaks. Call 406-542-5500.

27—Guided tours and Saturday lecture series begin at Bannack State Park
Talks feature historical, recreational, and natural resource topics. Call 406-834-3413.

June

10—Buzzard Day at Makoshika State Park
Fun runs, "turkey shoot," nature walks, and many activities. Call 406-365-6256.

13—Discovery Days begin at Spring Meadow Lake State Park
Tuesday night talks on natural history topics for kids and adults. Call 406-444-4720.

JEREMY PUCKETT

Spring Meadow Lake hosts a cardboard boat regatta in July.

24—Evening Campfire Talks at Salmon Lake State Park
Saturday night talks include historical and natural resource topics. Call 406-542-5533.

24—Evening Campfire Talks at Black Sandy State Park
Saturday night talks feature natural history and wildlife. Call 406-444-4720.

24-25—Lewis and Clark Encampment at Giant Springs State Park
Living interpretation of the portage around Great Falls with a variety of historical activities for all ages, including plays, lectures, guided tours, and float trips. Call 406-454-5840.

25—Dale Tash MT History Day at Bannack State Park
Learn the history of Bannack. Call 406-834-3413.

July

8—"Cardboard Cup" Regatta at Spring Meadow Lake State Park
Build and race a cardboard boat to help raise funds for the Montana Wildlife Rehabilitation Center. Call 406-444-4720.

8—Tour of the Night Skies at Council Grove State Park
Learn about constellations, black holes, and the whole universe at night. Call 406-542-5500.

15-16—Bannack Days at Bannack State Park
History comes alive in this celebration of the Montana frontier. Activities include pioneer skill demonstrations, old-time music and food, old-fashioned melodramas and skits, wagon rides, gold panning, dancing, mountain men and more. Call 406-834-3413.

21-22—Hell Creek Walleye Tournament
For details on entry fees and sign-up, call Joe Herbold, 406-557-2302.

22-23—Big Sky Thunderbirds at Frenchtown Pond State Park
Come watch the Big Sky Thunderbirds fly their beautiful radio-controlled model planes. Call 406-542-5500.

22-23—Weekend of Discovery at Missouri Headwaters State Park
A variety of activities on history, Lewis and Clark, and mountain men. Call 406-994-4042.

29—Living History at Fort Owen State Park
Explore a self-guided museum tour and enjoy history and folklore presented by artists and historians. Call 406-542-5500.

30—Lewis and Clark Caverns "Corks of Discovery" River Float
A 3-hour guided float through the Jefferson River Canyon. Call 406-287-3541.

August

5—Annual Youth Fishing Tournament at Hell Creek State Park
For details on entry fees and sign-up, call 406-557-2345.

12—Women's Walleye Tournament at Hell Creek State Park
For details on entry fee and sign-up, call Joe Herbold, 406-557-2302.

18-19—Dinner Theater at Makoshika State Park
An outdoor dinner at 5:30 p.m. followed by an original theater production. Call 406-365-6256.

19—Garden City Triathlon at Frenchtown Pond State Park
This event beginning and ending at the park includes a swim, bike ride, and run. Call 406-542-5500.

26-27—Bass Tournament at Hell Creek State Park
For details on entry fee and sign-up, call 406-557-2345.

Bookshelf

L.L. BEAN FAMILY CAMPING HANDBOOK, by Keith McCafferty, The Lyons Press, 123 West 18 Street, New York, NY 10011 (1-800-836-0510); 1999, 192 pages, soft cover, $18.95.

This handy guide will help parents take the worry out of outdoor trips—and make every excursion more fun for kids. The text is separated into four sections: getting started, making camp, exploring the outdoors, and references. Information on costs, camping methods, equipment, traveling with children, camp cooking, hiking, fishing, and wildlife viewing are included, as well as checklists for camp gear, cookbox, and medical kits. Whether you're a beginner or an old hand at camping, this book is a must for parents who want to share the outdoors with their children. McCafferty, a Bozeman-based outdoor writer and a contributing editor for *Field & Stream*, hopes the guide will "encourage you to cancel motel reservations and buy a tent instead."

THE SACRED ART OF HUNTING, by James A. Swan, Willow Creek Press, P.O. Box 147, Minocqua, WI 54548 (1-800-850-WILD); 1999, 160 pages, hard cover, $22.50.

The author of seven books about man and nature, James Swan has written widely about hunting and its profound influence on our culture and consciousness. "Throughout more than 99 percent of human history," he says, "hunting has been an unchallenged tap root of life, as well as a cornerstone of culture." Yet, as hunting has ceased to be a necessity of survival and the majority of the population has crowded into urban areas, a new tide of antihunting sentiment has to some degree replaced the age-old notion of hunters as heroes. Swan traces the history of hunting by documenting the rich heritage and customs of the hunt from cultures around the globe, and provides an enlightening perspective on the hunter's place in a changing world.

ONCE UPON A FRAME, by Tom J. Ulrich, Mountain Press Publishing Company, P.O. Box 2399, Missoula, MT 59806 (1-800-234-5308); 1999, 120 pages, soft cover, $23.95.

In his search for unusual wildlife photos, Montana photographer Tom Ulrich has traveled throughout the United States as well as to exotic destinations around the world like Australia, Brazil, Costa Rica, and New Zealand. This book tells the stories behind 181 of these photos, focusing on the adventure of photography rather than on technique. In addition to their artistic merit, these remarkable color photos provide insights into wildlife behavior and natural history. This book will appeal equally to photographers, wildlife watchers, and adventurers, armchair and otherwise.

LORE OF TROUT FISHING, by Art Lee, Human Kinetics, P.O. Box 5076, Champaign, IL 61825 (1-217-351-5076); 1999, 240 pages, hard cover, $26.95.

A special collection of lessons from the pages of *Fly Fisherman*, a magazine to which the author has contributed for more than two decades, this book provides detailed information on choosing flies, presenting them to fish, selecting fishing locations, and countless other tips gleaned from years of experience on the water. It also contains nearly 200 black-and-white photos and illustrations, as well as an eight-page, full-color insert showing Lee's favorite flies. Equal parts information and inspiration, this guide is a mixture of instructional material and captivating tales that will help you catch fish and have more fun doing it.

WHITETAIL MONARCHS: LEGENDS OF AUTUMN, by George Barnett, Willow Creek Press, P.O. Box 147, Minocqua, WI 54548 (1-800-850-WILD); 1999, 160 pages, hard cover, $29.50.

Few wild animals capture the imagination and attention of hunters, photographers, and wildlife watchers like the white-tailed deer. Widely distributed throughout North America, the whitetail has prospered in the face of rising human populations throughout much of its range. *Whitetail Monarchs* tells the story of these elusive creatures, interweaving an informative narrative with more than 200 remarkable color photographs by the author. As the title implies, this is primarily a book about spectacularly antlered bucks—their behavior, complex social structures, and the rare combination of luck, habitat, and genetics required to create one. The photos are truly remarkable, and the text tells a compelling story of the whitetail's comeback from dangerously low numbers a century ago to roughly 20 million animals today. It also document's the hunter's role in what many consider to be America's greatest conservation success story.

THE GREAT ROCKY MOUNTAIN NATURE FACTBOOK, by Susan Ewing, WestWinds Press, 1238 Uinta St., Denver, CO 80220 (1-303-399-3024); 1999, 224 pages, soft cover, $14.95.

This informative guide to a sampling of the flora, fauna, and terrain of the Rocky Mountains is user-friendly and handsomely illustrated with pencil-drawn illustrations. Arranged into three sections—"Animals," "Plants," and "Natural Features"—the book covers a portion of the northern and central Rockies from southern British Columbia to northern Colorado. It isn't meant to be a field guide, says the author. "Think of it as an appendix to your field guides on mammals, birds, wildflowers, trees, rocks, minerals, and weather. It's not meant to help you identify the things you see as much as it's meant to help you make sense of what you identify." A complete index helps readers locate topics of interest, and sidebars round out many entries with biological esoterica, safety advice, and even a recipe or two.

1999 Montana Fish Records

Bass Bonanza

After taking a backseat to eastern Montana for a couple of years, western Montana swept top honors in the fish records competition for 1999. Of five new records, four were posted west of the Continental Divide.

Adam Nelson of Bigfork landed an 8.29-pound largemouth bass last June at Many Lakes near Bigfork, eclipsing a record from Milnor Lake set in 1984. Nelson caught his 22-inch fish on a spinnerbait with plastic worm.

In July, Missoula angler **Richard Babbitt** caught a smallmouth bass in the Flathead River weighing 6.34 pounds, edging the previous mark of 6.20 pounds set in 1998 at Fort Peck Reservoir. Like Nelson's largemouth, the record smallmouth fell for a spinnerbait.

Adam Nelson with his record largemouth bass.

Babbitt, who has caught and released several other large smallmouths in the Flathead, believes there are other record fish in the river. "I broke off a bigger one on 12-pound test last year," he says.

Both species of bass are known for their fighting qualities and aerial acrobatics. Introduced to Montana years ago from states farther east, largemouths do best in mud-bottomed lakes with comparatively warm summer water temperatures, while smallmouths favor cooler streams and lakes.

Richard Babbitt displays the new record smallmouth.

Ashley Lake near Kalispell was the scene of an epic battle through the ice in February of 1999 as **Frank Gamma** of Kila subdued a state record pygmy whitefish. As its name implies, the pygmy whitefish is a pint-size relative of the more common mountain whitefish, and Gamma's record specimen nudged the needle at only 0.18 pounds. But it turned out to be the heaviest pygmy whitefish registered in Montana in 17 years. Gamma, who often ice fishes for salmon at Ashley Lake, says he has caught lots of pygmy whitefish in the 4- to 6-inch range. But this fish measured 8 inches, prompting him to call the FWP office in Kalispell to ask about the existing record. He was told he should probably have it weighed, and he's glad he did.

Eureka angler **Angela Price** added her name to the records list with a 0.74-pound peamouth caught at Noxon Rapids Reservoir on May 30, 1999. Price's fish bested the previous record of 0.64 pounds set at Ashley Creek in 1991. According to *A Field Guide to Montana Fishes*, by George D. Holton and Howard E. Johnson, the peamouth is a native fish found only west of the Continental Divide in northwestern Montana.

The fifth and final record for 1999—a 6.03-pound Kokanee salmon from Hauser Reservoir near Helena—was set by another western Montana angler, **Bruce Elliott** of Missoula. Elliott's fish edged out the previous record Kokanee from Pishkun Reservoir that had set the standard for 23 years. The Kokanee is a Pacific salmon that has been stocked in numerous locations throughout the state.

Other large fish of note taken in 1999, although not state records, included a 26.5-pound channel catfish from Fort Peck Lake caught by Tracy Downey of Bozeman, and a 19-pound brook trout-lake trout hybrid taken by Butte angler Marty Henderson at Georgetown Lake. The latter fish, although not eligible for the records list due to its hybrid status, is believed to be the biggest fish ever taken from Georgetown Lake.

What should you do if you think you've caught a record fish? You must have it weighed before witnesses on a government-inspected scale like those found in most grocery scales, and you need to fill out a record fish report, available from any FWP office. An FWP employee must positively identify the fish, either through direct examination or with help of a good color photo. Direct examination is preferable, because in some cases a photo will not suffice to verify the species.—*Dave Books*

Montana's Record-Setting Fish (1999)

Species	Weight	Angler	Year	Location
Arctic grayling	3.21 lbs.	Frederick C. Dahl	1994	Handkerchief Lake
Bigmouth buffalo	57.75 lbs.	Craig D. Grassel	1994	Nelson Reservoir
Black bullhead	2.33 lbs.	Darwin Zempel, Jr.	1994	Lower Flathead River
Black crappie	3.13 lbs.	Al Elser	1973	Tongue River Reservoir
Blue sucker	11.46 lbs.	Doug Askin	1989	Yellowstone River (near Miles City)
Bluegill	2.64 lbs.	Brent Fladmo	1983	Peterson's Stock Dam
Brook trout	9.06 lbs.	John R. Cook	1940	Lower Two Medicine Lake
Brown trout	29.00 lbs.	E.H. "Peck" Bacon	1966	Wade Lake
Bull trout	25.63 lbs.	James Hyer	1916	unknown
Burbot (ling)	17.08 lbs.	Jeff E. Iwen	1989	Missouri River (near Wolf Point)
Carp	40.20 lbs.	Jared Albus	1998	Nelson Reservoir
Channel catfish	27.17 lbs.	Ed Ellertson	1998	Castle Rock Reservoir
Chinook (king salmon)	31.13 lbs.	Carl L. Niles	1991	Fort Peck Reservoir
Cisco	1.46 lbs.	Jim Liebelt	1990	Dredge Cut Trout Pond
Coho salmon	4.88 lbs.	Irven Stohl	1973	Fort Peck Reservoir
Cutthroat trout	16.00 lbs.	William D. Sands	1955	Red Eagle Lake
Flathead chub	0.53 lbs.	Lyle McKeever	1998	Marias River
Freshwater drum	20.44 lbs.	Richard C. Lee	1987	Fort Peck Reservoir
Golden trout	4.90 lbs.	Carl Radonski	1993	Lightning Lake
Goldeye	2.91 lbs.	Vance "Bubba" Kielb	1989	Irrigation canal (west of Malta)
Green sunfish	0.56 lbs.	Roger Fliger	1991	Castle Rock Reservoir
Kokanee (salmon)*	**6.03 lbs.**	**Bruce Elliott**	**1999**	**Hauser Reservoir**
Lake trout	42.00 lbs.	Dave Larson	1979	Flathead Lake (east shore)
Lake whitefish	10.08 lbs.	Theo Hamby	1995	Lower St. Mary Lake
Largemouth bass*	**8.29 lbs.**	**Adam Nelson**	**1999**	**Many Lakes**
Largescale sucker	5.06 lbs.	Loren Kujawa	1996	Kootenai River
Longnose sucker	3.27 lbs.	Ray Quigley	1988	Marias River
Mottled sculpin	0.03 lbs.	Blain X. Grisak	1997	Sheep Creek (Meagher Co.)
Mountain whitefish	5.09 lbs.	Mervin "Frog" Fenimore	1987	Kootenai River
Northern pike	37.50 lbs.	Lance Moyler	1972	Tongue River Reservoir
Northern squawfish	7.88 lbs.	Darrel Torgrimson	1991	Noxon Rapids Reservoir
Paddlefish	142.50 lbs.	Larry Branstetter	1973	Missouri River
Peamouth*	**0.74 lbs.**	**Angela Price**	**1999**	**Noxon Rapids Reservoir**
Pumpkinseed	0.95 lbs.	Tim Colver	1985	Milnor Lake
Pygmy whitefish*	**0.18 lbs.**	**Frank Gamma**	**1999**	**Ashley Lake**
Rainbow trout	33.1 lbs.	Jack Housel, Jr.	1997	Kootenai River (David Thompson Bridge)
Rainbow-cutthroat hybrid	30.25 lbs.	Pat Kelly	1982	Ashley Lake
River carpsucker	3.50 lbs.	James Jessen	1991	Yellowstone River near Terry
Rock bass	0.57 lbs.	Don Holzheimer	1989	Tongue River Reservoir
Sauger	8.81 lbs.	Gene Moore	1994	Fort Peck Reservoir
Shorthead redhorse sucker	4.68 lbs.	Ray Quigley	1985	Marias River near Loma
Shortnose gar	3.06 lbs.	John Johnson	1977	Fort Peck dredge cuts
Shovelnose sturgeon	13.72 lbs.	Sidney L. Storm	1986	Missouri River
Smallmouth bass*	**6.34 lbs.**	**Richard Babbitt**	**1999**	**Flathead River**
Smallmouth buffalo	32.63 lbs.	Richard Liesener	1994	Nelson Reservoir
Stonecat	0.54 lbs.	Dale Bjerga	1996	Milk River
Tiger muskellunge	27.00 lbs.	Dan Dupea	1994	Lebo Lake
Tiger trout	4.04 ibs.	Joe Sobczak	1997	Bear Lake
Utah chub	1.81 lbs.	Eugene Bastian	1992	Canyon Ferry Reservoir
Walleye	16.38 lbs.	Steven McMorris	1996	Cooney Reservoir
White bass	2.25 lbs.	Vernon Pacovsky	1998	Missouri River
White crappie	3.68 lbs.	Gene Bassett	1996	Tongue River Reservoir
White sturgeon	96.00 lbs.	Herb Stout	1968	Kootenai River
White sucker	5.33 lbs.	Fred Perry	1983	Nelson Reservoir
Yellow bullhead	0.93 lbs.	Carl Radonski	1998	Tongue River Reservoir
Yellow perch	2.37 lbs.	Vernon Schmid	1988	Ashley Lake

***New Montana record for 1999**

Fishing Trips Build Bridges to Montana Youth

by Jon Obst, Region 6 Game Warden (Glasgow) and Dave Hagengruber, Angler Education Specialist (Helena)

Many Montanans will remember the winter of 1999-2000 for its warm weather and lack of snow. But for many grade school students along north-central Montana's Hi-Line, the winter will be remembered as the first time they caught a fish through the ice—an experience made possible by the hard work of volunteers, teachers, and FWP employees.

Nelson Reservoir was the scene of a fishing trip for fifth-grade students from Malta in January, and again in February when another fishing day was held for grade school classes from across Phillips County. Many of these schools, like Tallow Creek, Whitewater, and Loring, have fewer than 15 students enrolled.

For most of the students, it was their first experience fishing through the ice, and for many, one of the first times in their lives they had ever been fishing. Steve Jones, FWP game warden in Malta, helped organize the event. "I was really amazed at the number of kids out there who told me they had never been fishing before. I guess we too often take it for granted that everyone in Montana has the opportunity to fish and hunt."

Robert Twiford of Malta, owner of Malta Marine and past state president of Walleyes Unlimited, was one of the 20 volunteers from the Malta chapter of Walleyes Unlimited who joined Jones and other FWP employees out on the ice. "Kids are the future of fishing, and Walleyes Unlimited believes strongly in providing this opportunity to them," he says. "I hope that getting them involved in fishing today may someday steer them away from some of the negative things that are out there in the world. This is a good day for everyone involved, including all the volunteers out there helping. Seeing these kids catch fish gives me all the pleasure in the world."

By the time the kids arrived at the reservoir, volunteers had dozens of tip-downs strung out across the ice over 35 feet of water. Small hooks baited with lively minnows were suspended just above the bottom, and it didn't take long for the action to begin. From a distance, the activity on the ice may have appeared chaotic, but a well-structured regimen was in place.

DAVE HAGENGRUBER

A happy angler shows off his catch.

As soon as they stepped off the bus, the students were taught the basics of ice safety by FWP warden Jones. After walking to the fishing area, they were assigned to a Walleyes Unlimited volunteer who explained the tackle and techniques they would use during the day. As they began catching fish, they received an impromptu lesson in fish identification. Then, in assembly-line fashion, other volunteers stood ready at a large table to which the kids carried their fish. First the students were photographed with their catch, then their fish were quickly processed into fillets. The last stop was the deep fryer; after a few minutes the youngsters and volunteers dined on fresh walleye, northern pike, and perch. "The focus of this day is education," says Jones, "but the kids have a great time learning while they're out there."

There are many benefits to this learning experience that go beyond the time spent outdoors. At a similar event in Havre, all the public school third grade classes get to experience ice fishing as a part of the "Hooked on Fishing, Not on Drugs" program. Students record information on the fish they catch, including species, length, and weight, and use the data later in classroom math lessons. Writing activities before and after their time on the ice let the students bring their fishing trip a bit further into the classroom. Many of the fish caught in

the 100 or so classrooms across the state participating in "Hooked on Fishing" are used in fish anatomy and dissection lessons.

For Jones and other game wardens in the region, the link between law enforcement duties and spending time ice fishing with kids is more than just a coincidence. "A warden's job has many more facets than just checking licenses and writing tickets," says Jones, who has four young boys of his own. "I think today is a good example. This is a chance for me to meet these kids on their own terms, out where we can establish a positive relationship between them and the department. It's all about building bridges for the future and changing attitudes. Best of all though, days like today are just a lot of fun for me. I wouldn't trade it for anything."

Jones is not alone in his educational efforts. Across the state, even as demands on their time become greater, wardens look for ways to make public education a priority in their jobs. In FWP's Region 6, for example, wardens participate in a variety of educational events each year. Near Glasgow, "Kids and Ponds Fishing Days" are held at local ponds once a month all summer long. FWP wardens also work with the Fort Peck Tribe at the Poplar Culture Water Festival. In 1999, nearly 1,000 students and teachers took part in this event.

By combining their talents with the efforts of local volunteers and teachers, FWP wardens are ensuring that students across the state are learning the skills and ethics they need to become successful anglers and responsible stewards of Montana's resources. But even with volunteer groups like the Malta Chapter of Walleyes Unlimited, additional help is always welcome. "I'd encourage folks to get out and participate in activities like this," says Jones. "The response of the kids has been terrific, but the knowledge that we may be having an impact on the future of fishing in Montana makes it even more rewarding."

DAVE HAGENGRUBER

DAVE HAGENGRUBER

DAVE HAGENGRUBER

Thanks to the efforts of volunteers, teachers, and FWP employees, north-central Montana grade-schoolers enjoyed a successful day of fishing through the ice.

HUNTING AND FISHING: SIMPLY PART OF US

May I offer two comments re John Fraley's article titled "Stages" (November/December 1999). I puzzle why he bifurcates fishing from hunting inasmuch as fishing is hunting...with a stick.

I have a suspicion that people who write articles about this subject and the people they write about are a bunch of crotchety grouches who never reached the last stage to discover that we fish and hunt simply for the joy of fulfilling a physical purpose that is a part of us.

In other words we fish and hunt for the pure joy of it, nothing more nor less.

Have fun!!!—*Larry Michnevich, Bozeman*

BEST PHOTO ISSUE EVER

Your January 2000 edition is the best Photo Issue ever! I've done some visiting in Montana and have fallen in love with it. The Mission Mountains are my favorite.—*Rosemary Jones, Spokane, Washington*

It's been over 10 years since I last visited your state (I was stationed at Malmstrom AFB). I've seen all but two of your annual photo issues since 1985. This year's issue was, by far, the best you've done to date! As an avid outdoorsman, I've gotten tired of too many pictures of "pretty animals."

You guys really strummed my heart strings (and went out on a limb) by shooting obscure areas like Belt Creek's "Sluice Boxes," and the Flathead River. And there weren't too many photos of the Yellowstone, Big Hole, and Paradise Valley's spring creeks (those appear in all the catalogues and brochures)...even though I love seeing "out of the way" pristine waters (great Gallatin River shot!).

Please continue to keep us fishermen and hunters in mind! Even during the rest of the year, there should be one exclusive article on fishing and one exclusive article on hunting in each regular issue. Keep in mind, fishermen like reading about fishing (even in November and February); and hunters like reading about hunting (even in April and June). God bless you and your staff, and continue your outdoorsman/ecology/conservation (balanced) focus.—*Gary R. Rafferty, Major, HQ Air Force Space Command, USAF Academy, Colorado*

When your photo issue came out a couple of months ago, I just felt I had to write to you.

I am so proud to be a Montanan. I have hunted, fished, and backpacked so much of this state, but when your photo issue came out I realized I had just barely scratched the surface of this wonderful state! How lucky I am to be able to look forward to exploring places in this state that I haven't yet seen. Please continue to show us all the wonderful places that make us so happy to live where we are!—*Vic Redinger, Billings*

DREAMING OF BETTER PLACES

Thank you so much for the calendar. It was a welcome gift. As a subscriber to *Montana Outdoors* I look forward immensely to each new copy and the great pictures inside. This came at a welcome time for me this year. On December 18, 1999, my fishing river was polluted to the point that 85 TONS of fish was hauled off to landfills. I have not been able to wade in or eat fish from this river for several years now. However, I could still fish and release, but now that is not possible. I am told not to let my Labs drink from the river as it is harmful to their health. Last week more raw sewage was released into the same stretch of river due to power failure, and as I am writing this letter they are telling of another poison that they have found in the water. So now that there are no fish I can only dream of better places.—*Ted Arthur, Indianapolis, Indiana*

Pileated woodpeckers

SEEING DOUBLE

I would like to submit a photo of two pileated woodpeckers I took in my backyard, here on the Flathead River, in Kalispell. As you can see they are both males. Hope you enjoy!—*Richard Bauer, Kalispell*

A GOOD OL' TROUT

My husband took our 5-year-old daughter, Sienna, fishing last summer. She caught two rainbow trout and a cutthroat. The cutthroat, he explained to her, has a red mark on its throat.

When they returned home, Sienna burst through the door and proudly told me all about catching two rainbows and a redneck!—*Lori Dailey, Glasgow*

MONTANA OUTDOORS

MARKET

Henley

This preshrunk, 100% cotton, long-sleeve shirt can be worn alone or as a base for layering. Available in *natural, leaf,* and *lake (shown)*, with embroidered mule deer, in sizes M, L, XL. **ITEM #1301-6 $29.95**

natural *leaf* *lake*

Made in Montana Vest

Windproof, water-repellent nylon shell with non-pilling polyester fleece lining that looks, feels, and breathes like cotton. Available in *black*, with embroidered Montana Outdoors logo, in sizes M, L, XL, XXL. **ITEM #6530-1 $58.95**

Denim Shirt

Generously cut for comfort, this 100% cotton shirt has button-down collar and embroidered trout and fly design. *Blue* denim shirt in sizes S, M, L, XL. *Natural* denim shirt (*shown*) in sizes M, L, XL (sorry, small not available in *natural* denim).
ITEM #1901-4 $39.95

blue *natural*

Golf Shirt

With contrasting collar, cuffs, and placket, this 100% combed cotton pique golf shirt is available in *forest green/wine/navy*; *wine/forest/navy (shown)*; and *jade/concord/royal.* Comes with embroidered Montana Outdoors logo; available in sizes M, L, XL.
ITEM #1202-1 $36.95

forest green/wine/navy *wine/forest/navy* *jade/concord/royal*

T-Shirt

This preshrunk, 100% cotton T has embroidered chipmunk detail. Preshrunk. Available in *ash, sage, straw (shown)*, and *forest green* in sizes S, M, L, XL. **ITEM #1102-2 $15.95**

ash *sage* *straw* *forest green*

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Logo Details

Pro-Style Cap

Features an embroidered pheasant and hunting dog; has adjustable plastic strap. Available in two-tone combinations–*dark green/khaki* and *dark caramel/dark green (shown).* One size fits all. **ITEM #2302-5 $14.95**

dark green/khaki *dark caramel/dark green*

Low-Profile Cap

Detailed with dry fly and rainbow trout; has adjustable fabric strap with brass buckle. Available in *dark green, charcoal, denim,* or *two-tone* (*denim visor and khaki crown, shown*). One size fits all. **ITEM #2101-4 $14.95**

dark green *charcoal* *denim* *two-tone*

Golf-Style Cap

Poly/cotton twill with embroidered mule deer and matching braid; has adjustable fabric strap with sliding zipper. Available in *dark green, black,* or *royal.*

ITEM # 2202-6 $14.95

dark green *black* *royal*

All garments can be machine washed and dried. Colors may vary slightly from ad.

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Contributors

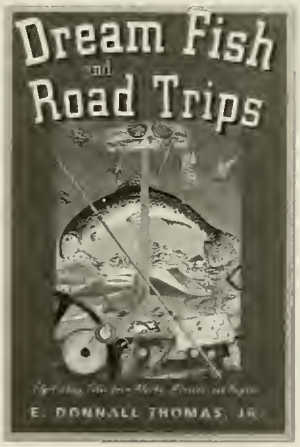
Curtis

"Predation," says **Sam Curtis**, "is an amoral presence in the natural world, fairly ugly for the individuals that get eaten, and for us as the occasional onlooker, but generally beneficial for the species to which the prey belongs." He reminds us that a great variety of birds, animals, reptiles, and insects—not just carnivores like wolves and mountain lions—must kill other creatures to survive. In "Grabbing a Bite to Eat" (p. 2) he describes some of these predators and the ingenious adaptations that make them more efficient and successful. Curtis is a Bozeman-based free-lancer whose outdoor and natural history articles appear often in *Montana Outdoors*.

Mountain lions have rapidly expanded their range in Montana in recent years, and hunting them with hounds has become a popular activity. But lack of benchmark data on lion populations makes it difficult for wildlife managers to set harvest quotas. In an effort to learn more about lions, how they are affected by hunting, and how they can be censused more accurately, FWP recently embarked on a decade-long study in the Garnet Mountains east of Missoula. For an overview of the study, read **James Hagengruber's** article "Counting Cougars in the Garnets" beginning on page 8. A free-lance writer and reporter for the *Billings Gazette*, Hagengruber tagged along with the research team one day last summer while they tracked, captured, and radio-collared lions.

Hagengruber

"Montana rivers—even great ones like the Yellowstone—can be stingy with their trout at times. "The 'Stone is a tough river that makes its enthusiasts suffer as much as any body of water I know," says **E. Donnall Thomas, Jr.** When the river comes alive, though, as it did one memorable July night for Thomas and a friend, the fishing can be downright spooky. "And when it comes to fishing that is spooky," he says, "as opposed to simply good or fast or memorable, I note with surprise how often it involves caddisflies." For an account of his experience on the Yellowstone, turn to "Caddis by Night" on page 14. A physician and writer from Lewistown, Thomas is author of a book called *Dream Fish and Road Trips*, in which this story first appeared. The book can be ordered from The Lyons Press, 123 West 18th Street, New York, NY 10011 (phone 800-836-0510).



Auchly

As information officer for FWP's Great Falls region, **Bruce Auchly** often fields questions about where to fish for trout in north-central Montana. "I could just direct folks to the Missouri, or one of the state's other premier blue-ribbon trout rivers," he says, "but big rivers can be hard to read, hard to wade, and intimidating." If you're looking for solitude as well as eager trout, he suggests checking out one of Montana's numerous smaller streams. How should you go about it? "Take any road into the mountains, find a creek, park, hike, and fish—or, for a more scientific approach, start with the Internet." For a thorough discussion of locating and fishing smaller waters, see his article "In Praise of Little Streams" beginning on page 20.

MO thanks the following photographers for their contributions to this issue: **Mike Barlow**, Livingston; **Pete & Alice Bengeyfield** and **Al Troth**, Dillon; **Denver Bryan**, **Dusan Smetana**, and **Dale C. Spartas**, Bozeman; **Milo Burcham**, **Nelson Kenter**, and **Bob Wiesner**, Missoula; **Tim Christie**, Coeur d' Alene, ID; **Jeff Henry**, Emigrant; **Jim Heustess**, Stevensville; **Larry Javorsky**, Hamilton; **Donald M. Jones**, Troy; **John Lambing**, Helena; **Daniel D. Lamoreux**, Mt. Carroll, IL; **Richard Mousel**, Great Falls; **Michael S. Quinton**, Slana, AK; and **Paul F. Updike**, Townsend. Thanks also to **Dave Hagengruber** of Helena who works for the department.

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